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Environmental Protection Agency

**40 CFR Parts 9, 122, 123, and 412
National Pollutant Discharge Elimination
System Permit Regulation and Effluent
Limitation Guidelines and Standards for
Concentrated Animal Feeding Operations
(CAFOs); Final Rule**

ENVIRONMENTAL PROTECTION AGENCY

40 CFR Parts 9, 122, 123 and 412

[FRL-7424-7]

RIN 2040-AD19

National Pollutant Discharge Elimination System Permit Regulation and Effluent Limitation Guidelines and Standards for Concentrated Animal Feeding Operations (CAFOs)

AGENCY: Environmental Protection Agency.

ACTION: Final rule.

SUMMARY: Today's final rule revises and clarifies the Environmental Protection Agency's (EPA) regulatory requirements for concentrated animal feeding operations (CAFOs) under the Clean Water Act. This final rule will ensure that CAFOs take appropriate actions to manage manure effectively in order to protect the nation's water quality.

Despite substantial improvements in the nation's water quality since the inception of the Clean Water Act, nearly 40 percent of the Nation's assessed waters show impairments from a wide range of sources. Improper management of manure from CAFOs is among the many contributors to remaining water quality problems. Improperly managed manure has caused serious acute and chronic water quality problems throughout the United States.

Today's action strengthens the existing regulatory program for CAFOs. The rule revises two sections of the Code of Federal Regulations (CFR), the National Pollutant Discharge Elimination System (NPDES) permitting requirements for CAFOs (Sec. 122) and the Effluent Limitations Guidelines and Standards (ELGs) for CAFOs (Sec. 412).

The rule establishes a mandatory duty for all CAFOs to apply for an NPDES permit and to develop and implement a nutrient management plan. The effluent guidelines being finalized today establish performance expectations for existing and new sources to ensure appropriate storage of manure, as well as expectations for proper land application practices at the CAFO. The required nutrient management plan would identify the site-specific actions to be taken by the CAFO to ensure proper and effective manure and wastewater management, including compliance with the Effluent Limitation Guidelines. Both sections of the rule also contain new regulatory requirements for dry-litter chicken operations.

This improved regulatory program is also designed to support and

complement the array of voluntary and other programs implemented by the United States Department of Agriculture (USDA), EPA and the States that help the vast majority of smaller animal feeding operations not addressed by this rule. This rule is an integral part of an overall federal strategy to support a vibrant agriculture economy while at the same time taking important steps to ensure that all animal feeding operations manage their manure properly and protect water quality.

EPA believes that these regulations will substantially benefit human health and the environment by assuring that an estimated 15,500 CAFOs effectively manage the 300 million tons of manure that they produce annually. The rule also acknowledges the States' flexibility and range of tools to assist small and medium-size AFOs.

DATES: These final regulations are effective on April 14, 2003.

ADDRESSES: The administrative record is available for inspection and copying at the Water Docket, located at the EPA Docket Center (EPA/DC) in the basement of the EPA West Building, Room B-102, at 1301 Constitution Ave., NW., Washington, DC. The administrative record is also available via EPA Dockets (Edocket) at <http://www.epa.gov/edocket> under Edoctet number OW-2002-0025. The rule and key supporting materials are also electronically available on the Internet at <http://www.epa.gov/npdes/caforule>.

FOR FURTHER INFORMATION CONTACT:

Gregory Beatty, U.S. EPA, Office of Water, Office of Wastewater Management (4203M), 1200 Pennsylvania Avenue NW., Washington, DC 20460, 202-564-0724, for information pertaining to the NPDES Regulations (Part 122) or Paul Shriner, U.S. EPA, Office of Water, Office of Science and Technology (4303T), 1200 Pennsylvania Avenue NW., Washington, DC 20460, 202-566-1076, for information pertaining to the Effluent Guideline (Part 412).

SUPPLEMENTARY INFORMATION:

A. General Information

1. What entities are potentially regulated by this final rule?
2. How Can I Get Copies of This Document and Other Related Information?
- B. Under what legal authority is this final rule issued?
- C. How is this preamble organized?
- D. What is the Comment Response Document?
- E. What other information is available to support this final rule?
- I. Background Information
 - A. What is the context for this rule?
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2. What are "excess manure nutrients" and why are they an indication of environmental concern?
3. What pollutants are present in animal manure and wastewater?
4. How do these pollutants reach surface water?
5. How is water quality impaired by animal manure and wastewater?
6. What ecological and human health impacts have been caused by CAFO manure and wastewater?

D. What are the roles of the key entities involved in the final rule?

1. CAFOs.
2. States.
3. EPA.
4. USDA.
5. Other stakeholders.
6. The public.
- E. What principles have guided EPA's decisions embodied in this rule?
- F. What are the major elements of this final rule? Where do I find the specific requirements?

1. NPDES Regulations for CAFOs.
2. Effluent Limitations Guidelines requirements for CAFOs.

II. What Events Have Led to This Rule?

- A. The Clean Water Act
 1. The National Pollutant Discharge Elimination System (NPDES) permit program
 2. Effluent limitations guidelines and standards
 3. Effluent guidelines planning process—Section 304(m) requirements
- B. Existing Clean Water Act requirements applicable to CAFOs
 1. Scope and requirements of the 1976 NPDES regulations for CAFOs
 2. Scope and requirements of the 1974 feedlot effluent guidelines
- C. USDA-EPA Unified National Strategy for Animal Feeding Operations

III. How Was This Final Rule Developed?

- A. Small Business Advocacy Review (SBAR) Panel
- B. Proposed Rule
- C. 2001 Notice of Data Availability
- D. 2002 Notice of Data Availability
- E. Public Comments
- F. Public outreach
 1. Pre-proposal activities
 2. Post-proposal activities

IV. CAFO Roles and Responsibilities

- A. Who is affected by this rule?
 1. What is an AFO?
 2. What is a CAFO?
 3. What types of animals are covered by today's rule?
4. Is my AFO a CAFO if it discharges only during large storm events?
5. How are land application discharges of manure and process wastewaters at CAFOs covered by this rule?
6. How is EPA applying the Agricultural Storm Water Exemption with respect to Land Application of CAFO Manure and Process Wastewaters?

Availability. EPA evaluated all the significant comments submitted and prepared a *Comment Response Document* containing the Agency's responses to those comments. The *Comment Response Document* complements and supplements this preamble by providing more detailed explanations of EPA's final actions. The *Comment Response Document* is available at the Water Docket. See Section E below for additional information.

E. What Other Information Is Available to Support This Final Rule?

In addition to this preamble, today's final rule is supported by extensive other information that is part of the administrative record, such as the *Comment Response Document*, and the key supporting documents listed below. These supporting documents and the administrative record are available at the Water Docket and via e-Docket.

- “*Development Document for the Final Revisions to the National Pollutant Discharge Elimination System Regulation and the Effluent Guidelines for Concentrated Animal Feeding Operations*” (EPA 821-R-03-001). Hereafter referred to as the *Technical Development Document*, this document presents EPA's technical conclusions concerning the rule. EPA describes, among other things, the data collection activities in support of the rule, the wastewater treatment technology options, wastewater characterization, and the estimated costs to the industry.
- “*Economic Analysis of the Final Revisions to the National Pollutant Discharge Elimination System Regulation and the Effluent Guidelines for Concentrated Animal Feeding Operations*” (EPA 821-R-03-002). Hereafter referred to as the *Economic Analysis*, this document presents the methodology employed to assess economic impacts of the final rule and the results of the analysis.
- “*Cost Methodology for the Final Revisions to the National Pollutant Discharge Elimination System Regulation and the Effluent Guidelines for Concentrated Animal Feeding Operations*” (EPA 821-R-03-004). Hereafter referred to as the *Cost Support Document*, this document presents the methodology employed to estimate costs that will be borne by CAFOs to comply with the requirements of the final rule.
- “*Environmental and Economic Benefit Analysis of the Final Revisions to the National Pollutant Discharge Elimination System Regulation and the Effluent Guidelines for Concentrated*

Animal Feeding Operations” (EPA 821-R-03-003). Hereafter referred to as the *Benefits Analysis*, this document presents the methodologies and results of analyses used to assess environmental impacts of the final rule.

- “*Environmental Assessment of Proposed Revisions to the National Pollutant Discharge Elimination System Regulation and the Effluent Guidelines for Concentrated Animal Feeding Operations*” (EPA 821-R-01-002). Hereafter referred to as the *Environmental Assessment*, this document illustrates the environmental impacts associated with animal agriculture.

- “*Information Collection Request for Final Revisions to the National Pollutant Discharge Elimination System Regulation and the Effluent Limitations Guidelines for Concentrated Animal Feeding Operations*” (EPA ICR No. 1989-02). Hereafter referred to as the *ICR*, this document presents estimates of the labor and capital costs associated with the recordkeeping and reporting requirements of the final rule.

I. Background Information

A. What Is the Context for This Rule?

Nationally, there are an estimated 1.3 million farms with livestock. About 238,000 of these farms are considered animal feeding operations (AFOs)—agriculture enterprises where animals are kept and raised in confinement. AFOs annually produce more than 500 million tons of animal manure that, when improperly managed, can pose substantial risks to the environment and public health. EPA and the United States Department of Agriculture (USDA) are committed to a comprehensive national approach to ensure that manure and wastewater from AFOs are properly managed. EPA and USDA are relying on a comprehensive suite of voluntary programs (e.g. technical assistance, training, funding, and outreach) and regulatory programs to ensure that AFOs establish appropriate site-specific comprehensive nutrient management plans (CNMPs) that will protect the environment and public health. Today's rule is a part of this suite of actions. It ensures that the largest of these operations, CAFOs, are required to develop and implement a nutrient management plan as a condition of an NPDES permit. The requirement in this rule to develop and implement a nutrient management plan can generally be fulfilled by developing and implementing a CNMP.

Congress passed the Clean Water Act to “restore and maintain the chemical,

physical, and biological integrity of the nation's waters.” (33 U.S.C. 1251(a)). The Clean Water Act establishes a comprehensive program for protecting our Nation's waters. Among its core provisions, the Act prohibits the discharge of pollutants from a point source to waters of the United States except as authorized by an NPDES permit. The Clean Water Act also requires EPA to establish national technology-based effluent limitations guidelines and standards (ELGs) for different categories of sources. Section 502 of the Clean Water Act specifically defines the term “point source” to include CAFOs. In 1974 and 1976, EPA promulgated regulations that established ELGs for large feedlots (CAFOs) and established permitting regulations for CAFOs. Today's final rule revises the more than 25-year old requirements that apply to CAFOs. This regulatory action, which applies primarily to the largest CAFOs, is an important component of the overall effort to ensure effective management of manure.

Focusing EPA's regulatory program on the largest operations, which present the greatest potential risk to water quality, is consistent with the *Unified National Strategy for Animal Feeding Operations* jointly developed by EPA and USDA (USEPA/USDA, March 1999). The *Strategy* specifies that the vast majority of operations that confine animals are and will continue to be addressed through locally focused voluntary programs. The *Strategy* defines a national objective for all AFOs to develop CNMPs to minimize impacts on water quality and public health from AFOs. The vast majority (estimated to be about 95%) of these CNMPs will be developed under voluntary programs. The requirement in today's rule that the largest of these operations develop and implement a nutrient management plan is consistent with the objective of the *Strategy*.

B. Why Is EPA Revising the Existing Effluent Guidelines and NPDES Regulations for CAFOs?

Despite more than 25 years of regulation of CAFOs, reports of discharge and runoff of manure and manure nutrients from these operations persist. Although these conditions are in part due to inadequate compliance with and enforcement of existing regulations, EPA believes that the regulations themselves also need revision. The final regulations being announced today will reduce discharges that impair water quality by strengthening the permitting requirements and performance standards for CAFOs. These changes are

expected to mitigate future water quality impairment and the associated human health and ecological risks by reducing pollutant discharges from facilities that confine a large number of animals in a single location.

EPA's revisions to the existing regulations also address the changes that have occurred in the animal production industries in the United States since the development of the existing regulations. The continued trend toward fewer but larger operations, coupled with greater emphasis on more intensive production methods and specialization, is concentrating more manure nutrients and other animal waste constituents within some geographic areas. These large operations often do not have sufficient land to effectively use the manure as fertilizer. Furthermore, there is limited land acreage near the CAFO to effectively use the manure. This trend has coincided with increased reports of large-scale discharges from CAFOs, as well as continued runoff that is contributing to the significant increase in nutrients and resulting impairment of many U.S. water bodies.

Finally, EPA's revisions to the existing regulations will make the regulations more effective for the purpose of protecting or restoring water quality. The revisions will also make the regulations easier to understand and better clarify the conditions under which an AFO is a CAFO and, therefore, subject to the regulatory requirements of today's final regulations.

C. What Are the Environmental and Human Health Concerns Associated With Improper Management of Manure and Wastewater at CAFOs?

This section provides a brief summary of the environmental and human health concerns associated with the improper management of manure and wastewater at CAFOs. It is intended to provide the necessary context for discussions in subsequent sections of this preamble. Information is provided on the amount of manure generated by animal agriculture and the areas of the country where the amount of manure generated by these operations is considered excess at the farm and county levels as defined in analyses by USDA. This information is critical to framing the action EPA is taking today. A detailed discussion of the environmental and human health impacts is presented in Section VII of this preamble, entitled Environmental Benefits of the Final Rule.

Livestock and poultry manure, if not properly handled and managed by the CAFO, can contribute pollutants to the environment and pose a risk to human

and ecological health. EPA's administrative record for this final rule includes estimates of the amount of manure and excess nutrients generated each year by CAFOs and provides information on the types of pollutants known to be present in animal manure and wastewater. The administrative record also documents the potential environmental problems associated with CAFOs, based on States reporting water quality impairment attributable to agricultural and animal production, survey data that show human and ecological health risks associated with these pollutants, and documented cases linking these risks to the discharge and runoff of pollutants from livestock and poultry facilities. More information is provided in the 2001 proposed rule (66 FR 2972–2974 and 66 FR 2976–2984) and other support documents referenced in the proposal and in the administrative record for this final rule. The administrative record contains information on the scientific and technical literature, as well as available survey and monitoring data, to corroborate the Agency's findings.

1. How Do the Amounts of Animal Manure Compare to Human Waste?

USDA estimates that operations that confine livestock and poultry animals generate about 500 million tons of manure annually (as excreted). This compares to EPA estimates of about 150 million tons (wet weight) of human sanitary waste produced annually in the United States, assuming a U.S. population of 285 million and an average waste generation of about 0.518 tons per person per year. By this estimate, all confined animals generate 3 times more raw waste than is generated by humans in the U.S. As a result of today's action, EPA is regulating close to 60 percent of all manure generated by operations that confine animals. Of the estimated amount of nutrients generated by these operations that is in excess of cropland needs, EPA's regulation will account for nearly 70 percent of manure generated by these operations.

2. What Are "Excess Manure Nutrients" and Why Are They an Indication of Environmental Concern?

An analysis developed by USDA provides a means to consider the potential environmental risk from confined livestock and poultry manure based on the amount of "excess" manure nutrients generated by CAFOs. USDA defines "excess manure nutrients" on a confined livestock farm as manure nutrient production that exceeds the capacity of the crop to

assimilate the nutrients. USDA's analysis of *1997 Census of Agriculture* data indicates that a considerable portion of the manure nutrients generated at larger animal production facilities exceeds the crop nutrient needs, both at the farm and local county levels. Given consolidation trends in the industry toward larger-sized operations that tend to have less available land on which to spread manure, the amount of excess manure nutrients being produced has been rising.

Among the principal reasons for the farm-level excess of nutrients generated is inadequate land for utilizing manure. USDA data show that the amount of nutrients, and the amount of excess nutrients, produced by confined animal operations rose about 20 percent from 1982 to 1997. During that same period, cropland and pastureland controlled by these farms declined from an average of 3.6 acres in 1982 to 2.2 acres per 1,000 pounds live weight of animals in 1997. The combination of these factors has contributed to an increase in the amount of excess nutrients produced at these operations. Larger-sized operations with 1,000 or more animals exceeding 1,000 pounds accounted for the largest share of excess nutrients in 1997. Roughly 60 percent of the nitrogen and 70 percent of the phosphorus generated by these operations must be transported off-site.

By sector, USDA estimates that operations that confine poultry account for the majority of on-farm excess nitrogen and phosphorus. Poultry operations account for nearly one-half of the total recoverable nitrogen, but on-farm use is able to absorb less than 10 percent of that amount. In 1997 poultry operations accounted for about two-thirds of the total excess on-farm nitrogen. About half of the estimated on-farm excess phosphorus was generated by poultry. This is attributable to not only the limited land area for manure application but also the generally higher nutrient content of poultry manure compared to the manure of most other farm animals, as reported in the scientific literature. Dairies and hog operations are the other dominant livestock types shown to contribute to excess on-farm nutrients, particularly phosphorus.

The regions of the United States that show the largest increase in excess nutrients between 1982 and 1997 are the Southeast and the Mid-Atlantic. The excess amounts are mostly the result of the number and concentration of large poultry and hog operations in those regions. These operations generate high nutrient concentrations and often have the smallest land area per animal unit